HEALTH

EDITED BY

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

OUR recent remarks on "wart cures" have elicited from various correspondents some interesting information regarding curious devices adopted for the removal of these growths. One correspondent, for example, writes that he has had experience of a perfect cure in the shape of raw beef, *plus* a certain mysterious work of burial, as follows:—His hands were covered with warts, and one day "a benevolent old gentleman" advised him to procure a small piece of raw beef, to rub the warts with the beef, and "immediately after doing so, to *bury* the piece of beef in the ground. As soon as the beef has rotted away," said the old gentleman, "your warts will be gone." Our correspondent acted up to the instructions received, rubbed his warts, and buried the beef. In a few days he was able to note a difference in the size of the warts, and in about a month afterwards they had disappeared. We are not informed if curiosity, either of scientific or commonplace kind, instigated our correspondent to see if the beef had undergone complete decay; but he adds that his adviser "laid particular stress" on the burial of the beef.

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A SECOND communication details that saliva (the fluid of the mouth) has been found to possess a powerful effect upon corns. Our readers will remember that in "Notes by the Way," in No. 40, we alluded to the opinions of a correspondent who alleged that by wetting warts with saliva, taken from the mouth while fasting in the morning, they were made to disappear. We then pointed out that the composition of saliva was well-known, and that it contained nothing at all likely to dissolve or affect warts. The communication now before us, maintains that saliva will eradicate corns, as well as warts. Within a week, after wetting the corn with saliva, while he was fasting, our correspondent's ailment disappeared; and he adds that he has found this cure efficient in other cases.

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Now, these cases are highly interesting to the student of mental science. They are capital examples of the "faith cures," which are also seen when a case of rheumatism (real or fancied), has been cured by the application of an "electrical" belt, proved by scientific examination, to be capable of producing no electricity whatever. A "dominant idea" is impressed upon a person's mind that saliva is a specific for warts or corns; or the idea that raw beef will cure warts, may be further strengthened by the mysterious command to bury the beef as an essential element in the process of cure; and forthwith, in all confidence be it remarked, the patient obeys, and is cured! Persons who have not read accounts of the influence of mind over body, are often unable to credit the results that may follow. Expectation thus induced, we refer such to our articles on "Faith and Miracle Cures," to be found in our first volume, and to Dr. Carpenter's "Mental Physiology," for full details respecting the action of expectant minds on obedient bodies.

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HERE is a case in point. Long ago a certain apparatus called "Perkin's Metallic Tractors," foreshadowed the sham "Electrical Belts" of these latter days, as agents which were warranted to cure any and every disease. These "Tractors" were believed to exert a mysterious "galvanic agency" which cured the ailments of the sufferers who resorted to the use of the apparatus. So great was the fame of these "Tractors" that several surgeons and physicians set themselves the task of investigating the truth of their claims as curative agents. The result was highly interesting. There was no doubt that "Perkin's Tractors" cured diseases, but *precisely similar cures were effected by "tractors" made of wood, and painted so as to closely imitate the famed apparatus, the patients being unaware of the deception thus practised upon them.* All that was required then, as now, for the efficacy of the cure, was the profound "faith" of the patient in the effects and power of the agent used. The burial of the beef, and the use of the saliva while fasting, in the cases above detailed, are in themselves notable items, showing how closely the "faith-cure" of to-day is allied to the witchcraft rites of past years. Here is a suggestion for some of our friends:—Let them take a tiny phial of pure water (as detailed by us in the "Notes" of No. 40 HEALTH), and, carefully concealing the nature of the liquid from a warty subject, present the phial to the latter, assuring him that, used with extreme care, the lotion will prove an unfailing cure for warts. The result will show that what saliva accomplishes, pure water will also effect; and for that matter of it, we all know that mumbling a few mysterious words over a wart, and touching the growth (as in the so-called "wart-charming") are in themselves sufficient to cause its disappearance. The patient, by way of having duly impressed on his mind the mystic nature of the rite, might be instructed to bury the phial, *à la* the beef-burial, after using its contained fluid as an application.

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THE experiments of Dr. Carter Moffat on the influence of peroxide of hydrogen on the voice have elicited a number of inquiries respecting the nature of this substance. Peroxide of hydrogen was discovered by Thenard in 1818. Water consists of hydrogen and oxygen combined in certain proportions, and is known in chemical phraseology as H_2O. Peroxide of hydrogen may be described as "oxygenated water," and is written H_2O_2 by chemists. The air we breathe, as most readers know, is a mixture (not a chemical combination) of the two gases oxygen and nitrogen. There are about 21 parts of oxygen and 79 of nitrogen in 100 of air. "Ozone," which is found in the air of the seaside and mountains, is oxygen in an altered, or, as chemists call it, an "allotropic" condition. Ozone is developed in air when an electrical machine is worked; while peroxide of hydrogen received the name of "antozone," under a somewhat erroneous notion of its source.

Now, peroxide of hydrogen has been proved to be a substance of high sanitary value. It is a liquid at ordinary atmospheric pressure and temperature, and can be made by suspending dioxide of barium in water, and passing a current of carbonic acid gas through the solution. It is certain that all decaying matter is vigorously acted upon by peroxide of hydrogen as a natural disinfectant; and, indeed, it is this substance which is the active principle of the "Sanitas" preparations so widely known as disinfectants. The value of Eucalyptus forests and of pine-woods, as purifying the air, is also due to their giving off substances which in the atmosphere produce peroxide of hydrogen. Mr. Kingzett, in his interesting book, "Nature's Hygiene," shows that 96,877,440,000 gallons of Eucalyptus-oil may be held at one and the same time in the leaves of trees in New South Wales and Australia. This amount of oil produces, in the air surrounding the forests, no less than 92,785,023 tons of peroxide of hydrogen, capable, in a singularly powerful fashion, of destroying decaying matter and of purifying the air.

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A HEALTH-DANGER, by no means too frequently considered, has been brought anew under public notice in Ireland. Two boys slept in a room lit by a paraffin lamp. This lamp had been left alight on their going to sleep. In the morning they were found exhibiting symptoms of suffocation. One boy died, while the other remains in a weak condition. Such a case presents a warning against the use of lamps in ill-ventilated sleeping apartments; while it also teaches us anew the high necessity for having our bedrooms well ventilated. Few persons know that the gas given off from the smouldering wick of a candle which has been blown out is highly noxious. Care should invariably be taken in seeing that complete extinction of the wick is ensured.

INTERNATIONAL HEALTH EXHIBITION, LONDON, 1884.—It has been found desirable to enlarge the scope of the Exhibition as regards Ambulance material. A special sub-committee has been appointed to deal with this subject, and they have prepared a memorandum indicating the principal exhibits which it is intended should be composed within the new group (Group III*a*., "Ambulance") which has been formed to receive them. The following is a summary of the principal appliances sought for exhibition:—1. Personal Surgical Equipment as carried by the medical officers of the army in question. 2. Appliances for treatment of wounds, carried by the soldier himself in the field. 3. Personal Surgical Equipment carried by ambulance attendants in the field, consisting of surgical haversacks (Havresacs Sanitaires), medicine panniers (Caisses Sanitaires), surgical knapsacks, field companions. 4. Ambulance Appliances carried by men, such as stretchers (Brancards), hammocks, dhoolies, and palanquins. 5. Wheeled Conveyances wheeled by men—wheeled stretchers. 6. Ambulance Equipment carried by mules, horses, &c. Cacolets, Litières, Mountain Ambulance Equipment (ambulance de montagne), cooking equipment for mountain campaigns, portable medicine chests, compressed drugs, &c. 7. Wheeled Vehicles used for the conveyance of sick, fourgons containing the equipment of hospital corps, surgery waggons, equipment waggons, field cooking waggons, pharmacy waggons, nursing utensils carried in waggons of field hospital. Books of instruction for use, diagrams. 8. Railway ambulances, consisting of carriages for wounded, with fittings, cooking carriages, and all the equipment of ambulance trains. Materials for converting ordinary carriages into ambulance carriages.

Original Essays

"Life is not to live, but to be well."—*Martial.*

QUACKS.

OF all the enemies to health, the quack is undoubtedly the most formidable and the most dangerous. It is not merely that the quack cannot, and does not, cure the malady of which he professes such profound knowledge. He also wastes the valuable time of the sufferer, and often lands his miserable victim, when too late, at death's door, when scientific advice, timely obtained, might have saved him pains and misery—or even life itself. We say nothing of the monetary frauds which the unblushing knavery of these scoundrels inflict upon those who are deluded enough to accept their offers of assistance towards "health" (?). It is bad enough, in truth, to be robbed of one's purse, and to be mulcted in ten, fifteen, twenty, or a hundred pounds, or even more, for a few bottles of coloured water, some soda powders, or some quack appliance which is about as well calculated to produce the "electricity" and "vital force" (of the advertisements) as it is capable of reaching the moon by an exercise of spontaneous movement. To lose money, we repeat is a regrettable thing; but worse by an immeasurable standard, infinitely more grievous, is it to lose, through quackish knavery, the health which may never return. It is the harm done to the body and mind alike by the filthy suggestions and the nefarious practices of the scoundrels who burlesque the noble profession of medicine—harm often irreparable in its nature—which must incite one to wish that he could—

> "Put in every honest hand a whip,
> To lash the rascals naked through the world."

These are strong words, but they are meant to describe an evil the magnitude of which few persons can appreciate or understand. There is not a village in the land which does not receive its quota of pamphlets by post, addressed by the quacks who reside in the nearest large town or city. Certain "firms" of London quacks possess agencies in the large towns, and work the districts of a county from several centres. Pamphlets written in English, the quality of which sufficiently betokens the degrading nature of the calling its writers follow, find their way into letter-boxes, and thence into the hands of boys and girls, whose minds are polluted by the immoral filth therein detailed. Were we at liberty to publish in full the details contained in letters which almost every post brings to hand, we should be able to frame an indictment against the state of the law which permits wholesale ruination of health, such as would surprise and disgust the most callous. Correspondents tell us of the shocking impostures practised by these quacks, and of the utterly baseless fabrications which form the foundations of their attack at once upon the health and purse of their dupes. Readers who wish for full details of quacks and their doings should read Dr. Courtenay's exposure, entitled "Revelations of Quacks and Quackery," published by Messrs. Bailliere, Tindall, & Cox, of London. What is therein stated—gross and glaring as are the impostures he describes—falls short of describing the real limits and nature of this canker of modern society. Before us lies the filthy production of a firm hailing from Manchester, and bearing the name of a person as the "secretary" of the firm. The inner side of the title-page—which declares the book to be "The Secret Whisper"—bears an advertisement, the character of which clearly enough indicates the degrading nature of the calling of the firm. The pamphlet

itself teems with the usual disgusting and prurient "information." One page informs us in bold capitals that there are "private waiting-rooms (*sic*) for each patient" at this establishment, and another that the "strictest confidence may be relied on." "Advice Gratis" is the announcement on another page, and the true nature of this precious intimation may perhaps be seen when, on turning to the inside of the cover, we find "The Excelsior Mixture" of the firm—"to be obtained only from the proprietors," of course—advertised at "2s. 9d., 4s. 6d., 11s., 33s., and 66s. case." This beautiful and unique production, "not sold by any chemist"—a fact we may certainly take for granted—is "sent to any part of the world packed and free from observation." It cures "all blood and skin diseases," and its value may, perhaps, be best appreciated when the astounding nature of this announcement is fully realised.

The matter of this pamphlet—forwarded to us by a correspondent—deals with the usual stereotyped subjects of quack treatment. Certain health matters of really little moment are dilated upon at full length, until the lay reader, if of an imaginative turn of mind, may well begin to fancy himself a prey to the mock disorders the quack describes. There is a dissertation, as usual, on "Marriage," and then succeeds the usual description of the ailments which this wretched fraternity specially professes to treat and cure. The members of this eminent firm, we are informed, "are always in attendance;" "Patients are corresponded with till cured;" and "Only one personal visit is necessary;" —we might add, for the effectual, and we hold illegal, lightening of the deluded patient's purse, and for the exaggeration of all his symptoms into those of actual disease.

We might detail at very considerable length the frauds perpetrated by quacks upon the public; but such matters are scarcely fit for publication in the pages of any lay journal. We might detail our visit to a notorious London quack, who, for the modest sum of five guineas, sells his victims an apparatus consisting of pieces of metal attached to a flannel belt, and who, under the name of a "Restorer," pretends that this harmless appliance will cure almost any ailment of nervous or other nature. The actual cost of producing this elaborate electrical (!) appliance is at the most a few shillings, and yet, under the idea of an electrical or magnetic wonder, this imposture is warranted to effect cures of marvellous kind. We might direct attention to the fact that there are quacks—both lay and "rev."—made known to "fame" by their advertisements in so-called "religious" periodicals, who profess to cure consumption and other equally grave constitutional troubles, and who keep a qualified physician on the premises presumably to give (through some extraordinary collusion between education and ignorance), an air of respectability to their doings. We might tell of quack companies who, under the name of "Dispensaries" and so forth, trade on the public credulity, but refuse, when asked, to disclose the names of their medical officers. We could speak of the analyses made of quack medicines, and show how coloured water is made to figure, under a grandiloquent name, as the great and unrivalled specific for disease. And, worst of all, we might tell more than one story of attempt at extortion by threats of exposure, and of youths especially, being well-nigh driven mad by the importunities of these scoundrels, who, after obtaining large sums of money from them, have fleeced their victims to the last farthing.

Such details constitute "the old, old story" of a shady side of life; but there never was a time when advice against quackery was more urgently required than now. In the streets of London and of every other city and town pamphlets of disgusting nature are daily distributed. Only a short time ago we handed to a chief constable a thoroughly immoral pamphlet, the production of a London firm, which, enclosed in an envelope, was delivered to each house in a certain thoroughfare of a northern city. The amount of evil which is thus wrought by quacks is simply incalculable; and both medical men and the public will certainly have cause to welcome the time when bogus M.D.'s of New York and Pennsylvania will be deterred by the law from practising their illegal arts in this country. The legal profession has taken care that unqualified men are not allowed to practise in our courts. Is it unreasonable to ask that in the all-important matter of health, the public should be as stringently protected from fraud?

RECENT IMPROVEMENTS IN MEDICAL ELECTRICAL APPLIANCES.

(*Concluded.*)

As has been pointed out in Mr. Lant Carpenter's articles, the condition to be complied with in a medical battery is that it must be capable of decomposing water. The human body and fluids generally, differ altogether from a metallic wire or resistance. In a wire, any electric pressure, however small, produces a proportionate flow of electric current; but, in the case of the human body, it requires a certain definite electric pressure to get any current at all to begin to pass; and, if the battery falls short of this, no current passes through the body, and the battery is useless. Hence, to show that each of these pocket medical batteries possesses this power, a small voltameter, or water-decomposing cell, is made to accompany it. This consists of a little glass tube (see A, Fig. 5), having a pair of platinum wires sealed

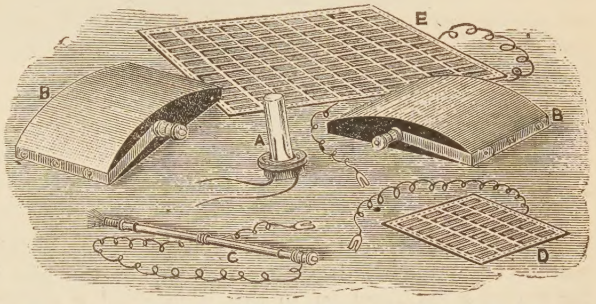

Fig. 5.—E, Flexible Medical Electrodes; A, Voltameter; B, Curved Electrodes; C, Brush Electrodes.

into it. They can be brought into connection with the black and red wires, which are the positive and negative poles of the battery. On filling the tube with a little water, a brisk effervescence ensues, which shows that the battery is forcing its electric current through the water, and tearing the molecules apart into its constituent gases—oxygen aud hydrogen. If the battery will not at any time perform this feat, it proves it is out of order and cannot send a current through the human body. All these instruments, however, are intended for the generation of smooth currents of electricity in one direction.

There is, however, another and more common mode of employing electric energy, in which the current of a small battery is not passed direct through the body, but sent through a bobbin of wire wound round a bundle of iron wires; over-

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

laying this bobbin of wire is another set of windings of finer wire, and when the current of the battery is suddenly started and stopped in the first or primary bobbin it gives rise to short, rapid, reversed currents in the outer layers of finer wire, and these short, sudden currents are passed through the body. This is called an induction coil. If we try to decompose water with this induced current, as it is called, we shall not succeed. This is not because the electric pressure is not great enough, but because the current supplied is not a continuons one, but is one made up of short currents, first in one direction and then in another. The induced current has quite a different physiological effect to the battery current, and, although capable of powerfully affecting the system, it cannot injure the skin, as the direct battery current can do if improperly applied. For this reason the induction coil is a favourite electro-medical instrument. But how often do we find a useful tool which, but for one little defect, like the fly in amber, would be invaluable? Such is the case with this apparatus. It needs a battery to set it in action, and the great public, which dislikes above all things, to have to slop about with acids and chemicals, prefers not to use it rather than to have so to do. This disadvantage disappears the moment we utilise the sealed insulite cell. Fig. 6 represents a most complete and

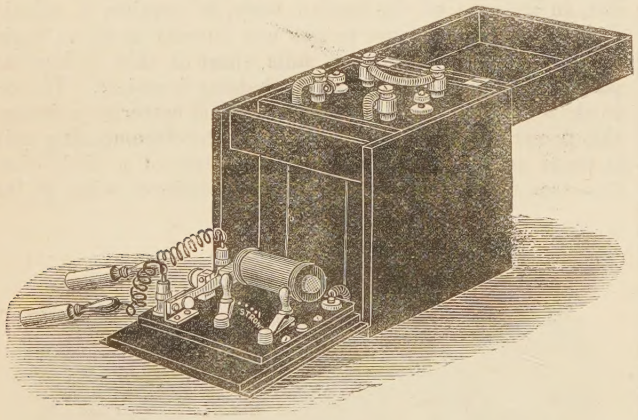

Fig. 6.—Medical Induction Coil and Insulite Sealed Cells.

carefully designed instrument. In a handsome ebonised case are two large insulite cells. One side of the box lets down like a flap, and on to this is fastened a perfectly-made induction coil. All the connections are ready-made. One little movement of a switch at the side starts the chattering-lever, which interrupts the primary current. In the centre is a device for regulating the strength of the secondary current; and, by the movement of one little lever over a series of buttons, the electric discharge can be increased or diminished at pleasure.

Above is a tray for holding the electrodes; and all the metal-work is nickel-plated, which preserves it from rust. No more convenient device could be imagined. It presents a neat appearance to the eye, and should find a place on the table of every consulting-room.

This completes the list of electric generators. We have still to notice some novelties in the mode of applying the current to the body. The most common method of doing this hitherto has been by brass tubes, having a piece of sponge inserted in the ends and connected by wires with the battery or coil. These the operator or patient holds in his hands by insulating handles, and presses on the parts to which the current is to be applied. This device is bad, for two reasons, first, it requires two hands to do it, and secondly, it does not afford sufficient surface of contact with the skin. In E and D, Fig. 5, we have represented, however, a great advance on the old design. It is a kind of pad of satteen, having on its surface a peculiar arrangement of small flexible metal plates, from eight to seventy-two in number. These plates are all in metallic connection with a silk-covered leading wire by which the pad or electrode is attached to the battery. The surface of metal is covered with a layer of moistened lint, and this pad is then bound on to the body. If frequent electrification of a limb or other part is required, these flexible electrodes can be bound on whilst dressing, and the wires brought out to make contact with the battery. The advantages of this pad are obvious. Its flexibility makes it fit perfectly any part of the body. The amount of moisture in the lint, and the time during which it is kept on, regulate the amount of resistance which the body offers to the current, and, lastly, as it is bound firmly on, it leaves both hands of the operator or patient free.*

Two curious kinds of electrodes are also figured on Fig. 5.

One is a metallic conducting brush, with which the course of a nerve may be painted with electricity. This is

Fig. 7.—Application of localised electricity to face by means of Brush electrode and tubular cells.

not to be confounded with other "electric brushes," which are electric only in name. It resembles a little paint brush, in which the camel's-hair is replaced by gilt thread, and the wooden handle by a brass tube covered with rubber. This is attached by a flexible conducting cord to the negative pole of a battery of about twelve tubular cells; and the other pole of the battery is brought into connection with the body by a flexible electrode, and the brush passed very lightly over the parts to be electrified. Fig. 7 shows its application in the case of facial neuralgia.

* The experiments of Cavendish and Maxwell, and more recently of Dr. Stone and Mr. Carpenter, have shown how enormously the resistance of the body decreases by prolonged moistening of the epidermis. The great value of these flexible electrodes lies in the fact that they can be bound on with moistened lint for some hours before commencing to pass the current. The inventor of these electrodes, Dr. Fleming, suggests the use of rose water and glycerine as a means of moistening and keeping moist the surface of the skin. The importance of this is that by a reduction in the skin resistance so much less electro-motive force, and hence fewer battery cells can be employed to give the required current. The proper way to increase the amount of the current is not to increase electro-motive force, but to reduce, as far as possible, the resistance of the current, and the resistance chiefly resides in the surface of the skin. By using these flexible medical electrodes with well-moistened lint, twelve cells can be made to pass a current which fifty or sixty will not pass if the skin is dry.

The other kind consists of curved blocks of insulating wood, covered with sheets of pure tin. Over this a layer of moistened lint can be strained, and, when these metal surfaces are connected with a battery by conductors, they afford a means of applying the current which can at the same time be glided over the surface. They are represented in Fig. 5, B B. We have thus provided in these three kinds of electrodes a means for permanent local electrisation with constant current, or for diffused or local electrisation with Faradic or inductive currents; and by the brush a means of carefully located and well-defined electrisation with either constant or interrupted current.

WHERE children dislike fat in a visible form, it is well to stir a lump of butter into each milk-pudding before serving it to table, and to encourage them to eat cold milk-pudding, as rice for instance, with butter and sugar.

THE milk of the human mother contains a little more sugar and more water than cow's milk. So it is customary to add a little sugared water to "the milk for baby's bottle." Where there is any acidity, any "possetting" of curdled milk, it may be well to substitute lime-water for simple water, or even to add a little prepared chalk to the milk. If constipation be present a little light magnesia may be added instead of the lime or chalk.

THE TRUTH ABOUT OYSTERS.—"Some delusions regarding the oyster" is the title of a paper by Dr. C. L. Dana, of New York, in the *Philadelphia Medical and Surgical Reporter*. The doctor is a lover of truth but not of oysters, or he would never have laid bare what he is pleased to term fallacies attached to our ideas of the delicious bivalve. It is a common belief, very consoling to those of feeble digestions, that the oyster, when taken into the stomach, executes, by virtue of hepatic diastase, a kind of *felo de se*, and digests itself. The doctor has tried the experiment, and put oysters, whole and masticated, into water, plain, alkaline, and acidulated, and finds the result *nil*, except in the case of the acidulated water, when prolonged digestion caused a softening of the liver of the bivalve. Fallacy number two—that raw oysters are always more digestible than when cooked—is not borne out by artificial digestion with pepsine. The oyster stew, being composite in character, is, however, not quite as readily managed by the stomach as raw oysters or those roasted in the shell. Delusion number three—that fermented liquors digest or assist the digestion of the bivalve was not borne out by fact, nor was the oft-cited experiment, that an oyster dropped into a glass of beer will dissolve, found to be correct. As a general conclusion we must reluctantly concede that the oyster is a mockery, but, like some other delusions sometimes associated with it, it will still be indulged in by ordinary mortals, who can afford it.

MEDICAL AND SANITARY EXHIBITION, 1881.—AWARD OF MERIT.—DIABETES. VAN ABBOTT'S GLUTEN BREAD, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. VAN ABBOTT, 5, Princes-street, Cavendish-square, W.—DELICATE CHILDREN AND ADULTS SUFFERING FROM NERVOUS DEPRESSION. VAN ABBOTT'S HYPOPHOSPHITE OF LIME BISCUITS, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—VAN ABBOTT, 5, Princes-street, Cavendish-square.—[ADVT.]

OUR PAPERS ON POPULAR SCIENCE.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

[Under this heading we propose from time to time to present our readers with papers, written in a plain, non-technical, and interesting style, and dealing with the various aspects of science which bear more or less directly on health matters. The details of our bodily structure and functions, together with the description of whatever is new and interesting in the natural and physical sciences, will be treated from a health point of view by various writers. It is hoped by this means that a general interest will be awakened respecting matters which, besides possessing a relation to the aims of HEALTH, present much that appeals with interest and profit to the general reader, and also to the student of science. —ED. "H."

FIRST PAPER.—OUR HEARING POWERS.

BY E. H. RICHES, LL.D., F.R.A.S.

To understand the way in which our organs of hearing perceive the effect of a sound, and the manner in which such sound is caused, it is necessary to deal with some of the principles of the science known as *acoustics*. The word itself comes from a Greek verb which means *to hear*. When vibrations in the air are caused by any impulse or shock, or when any solid substance, being in direct or indirect contact with the drum of the ear, is suddenly struck, a sound is heard; but it must be noted that the vibrations produced in the air are the *cause* of what we understand as sound. This drum or tympanum is a wonderful structure of thin membrane closing the aperture of the ear, and in order to understand how it is that the sensation of sound is produced by this drum of the ear being struck by the vibration of air, it will be well to bear in mind that there are various tubes and cavities behind the drum of the ear, situated in the bone forming the side of the head, in which it has been ascertained that small fibres of the auditory nerve are distributed. Now this drum of the ear will vibrate freely by reason of the sonorous undulations of the external air acting upon it, and the vibrations thus produced are communicated by the action of minute bones, muscles, and fluids contained in the cavities of the ear, to the nerve, and from thence the impressions are conveyed to the brain. It must not be supposed, however, that *air* is necessary to the production of sound, although most sounds owe their origin to vibrations of the air, for even *under water* sound can be produced; and it is further known that *all bodies* are, to a certain extent, capable of producing those sound vibrations already spoken of, and also that there are many cases where air is neither the best nor the quickest conductor of sound. There is a simple but interesting experiment as to sound, which may be made with a receiver exhausted of air, in which a bell may be rung without its producing any sound whatever; and the reason why no sound is produced is at once explained by the fact that, as there is no air, there can, therefore, be no vibrations to be received or transmitted. And it may be further noted that what is understood by *loudness* of sound when conveyed by air, depends upon the *density* of the air; for example, a whisper uttered in a diving-bell is always heard with greater distinctness than under ordinary conditions, for the reason that the air in the diving-bell is greatly condensed by the pressure of water, and consequently receives and transmits vibrations with great readiness. So also at any great alti-

tude, where the air is not so dense as it is lower down, the loudness of sound is always in proportion diminished. With reference to the statement made above, that sound may be produced even under water, it is an easy matter to show that there are sonorous vibrations in liquids; for if a glass half-filled with water be placed on a table, and one finger being wetted, be steadily rubbed round the edge of the glass, a sound will be at once produced, and the surface of the water will be covered with minute undulations. The loudness of sound produced in liquids depends upon the increase or decrease of their specific gravity. We know by experience that sonorous bodies (that is bodies which produce sound), which possess the property of sonorousness in the highest degree, are those metals and their alloys which have the greater amount of elasticity and hardness. For instance, in the case of the triangle, which is a steel rod bent into a triangular form, we have an example of the sonorousness of iron; in the case of cymbals, that of brass; and in the case of Chinese gongs and bells, which are made of an alloy of three parts copper and one of tin, we have an example of the sonorousness of bell-metal. We hear of savages putting their ears to the surface of the ground to listen for the approach of the enemy, and they do this for the reason that they can with greater distinctness hear; but although *smooth* surfaces, such as ice, water, or hard ground, are the best adapted for the transmission of sound, it must be remembered that in the case of solids, when they possess *elasticity*, sounds are conveyed to the ear far more readily by them than by gases or liquids. The vibrations in the air produced by a sound move in a series of concentric circles, and the average rate at which sound travels is 1,120 feet in every second; and so it is that the flash of a gun fired at a distance from an observer is seen *before* the sound of the report is heard, for the reason that light travels much faster than sound, the former travelling at the rate of 192,000 miles in every second. It will be thus seen that this knowledge of the velocity of sound may be made applicable to the measurement of distances; for instance, suppose the report of thunder reached us two seconds after the flash of the lightning be seen, and remembering that sound travels at the rate of 1,120 ft. a second, we may calculate that the point of the thunder-cloud which gave forth the flash is 2,240 ft. distant. Now according to the same law as gravitation, sound diminishes in intensity from the centre where it originates; that is, under ordinary conditions, at double the distance it is only one-fourth as loud, and at three times the distance it is a ninth. Thus it is if we want to shout to a friend at a distance, in order to condense the concentric vibratory circles we use a speaking-horn, or put our hands together to shout through them. This is fully exemplified in the case of long speaking-tubes used in offices and large buildings, by which means we can speak to a person in a distant room or part of the building. The vast utility of the speaking-trumpet and the ear-trumpet may be readily gathered from the consideration that the sounds are reflected from the sides of the tubes, and in the case of the ear-trumpet are brought to a focus at the end which enters the ear. A striking example, showing that iron, for instance, is a better conductor of sound than air, may be seen if the ear be placed to one end of a long iron tube, and a sound be transmitted through it from the other end, when a double sound is produced, for the reason that the iron conveys the sound more readily than the air, and the second sound (namely, that conveyed by the air) takes more time to travel.

When we speak of a *solid* vibrating, it must be remembered that such actually takes place, otherwise the *air* would not be affected. For instance, the metal composing a bell is solid; but it is a fact that every time it is struck *it really changes its form*, and the particles composing it are thrown in motion. And this may be the more readily understood when we remember that no two particles of matter are in *actual contact*, for there are minute spaces existing between all those combinations of matter, which are parts of the universe, as we know it; and this, too, in the case of such substances as ivory and granite, the component parts of each in reality are in a state of separation, and are, moreover, *in constant motion*. Thus it is that as the bell vibrates, the air to a certain distance round it is *compressed* at each vibration. The air then *expands* again, and, in doing so, repeats the pressure on the air next in contact with it, and so on; and, as these concentric circles increase in number, their force is diminished, and the sound gradually dies away. In the case, then, of a bell being struck, these vibrations of air are produced as just shown; and, this air reaching the ear in an agitated state, acts with similar effect upon the drum, and the mind there upon receives the impression of *sound*.

It has been often noticed that previous to a thunderstorm the air appears to be unusually quiet, and this may be accounted for from the fact that the air is suddenly and very greatly rarefied, and, as was before remarked, the denser the air the louder the sound, so under these altered conditions the power of the air to produce sound is greatly diminished.

More might be said as to the origin and transmission of sound, but we will now pass on to vocal and musical sounds, which will form the subject of our next paper.

Pet Animals and Contagious Diseases. — The fact that pet animals can carry contagion, and thus be the means of spreading fatal diseases, is not widely known nor duly appreciated. We have heard of authentic cases in which scarlet fever was communicated from one person to another by means of a cat. Dr. Hewitt, of Lake Superior, relates a somewhat similar instance in which diphtheria was communicated by the same animal. He had noticed for several days that his pet cat was suffering from an enlargement of the glands of the neck; he also remarked the same in other cats. His cat found a resting-place in the wall behind the stove, and there died. The day the animal was removed, diphtheria, in its most violent form, broke out in his family, resulting in the death of two or three of his children, the doctor himself barely escaping with his life. Up to this time, the community was remarkably free from sickness of any kind. It was the start of a severe epidemic. We refer to this subject in hopes that more facts bearing upon it may be communicated by our readers. Such facts are at present few, but a little attention paid to the matter would, no doubt, secure much that would be of importance to comparative and to preventive medicine.

Pownceby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Pownceby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

More about Kola Nut.—Messrs. Heyman & Phillips, of 15, Clifford-street, Bond-street, W., are grateful to the Editor of Health for his interesting article in the issue of January 11th. The Kola Nut on sale, 2s. 9d. a box, from them or from all chemists. — [Advt.]

Barnes's Impermeable Opium Poultice, an effective and perfectly safe application for relief in neuralgia, gout, rheumatism, painful swellings, and lumbago. Prices by post 1s. 3d. and 2s. 5d. 1 and 2, Trevor-terrace, Knightsbridge, S.W.—[Advt.]

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

OUR USEFUL NOTE-BOOK.

"When found, make a note of."—*Captain Cuttle.*

Fumigating Pastilles.—These are generally prepared from a mixture of finely-powdered charcoal, nitrate of potassium, aromatic substances (mostly of a resinous or balsamic nature), and mucilage of tragacanth, formed into small cones, usually with three flattened sides, and the corners at the base somewhat drawn out. Various odours may be incorporated in these pastilles. We append some formulæ:—1. *Rose Pastilles.*—Olibanum, 240; storax, 240; nitrate of potassium, 160; rose-leaves, dried and powdered, 500; charcoal, powdered, 1,800; oil of rose, 20 parts. 2. *Orange Pastilles.*—Olibanum, 240; galbanum, 240; storax, 240; nitrate of potassium, 160; orange peel, powdered, 500; charcoal, powdered, 1,800; oil of neroli, 20 parts. 3. *Vanilla Pastilles.*—Olibanum, 240; galbanum, 240; storax, 240; nitrate of potassium, 160; cloves, powdered, 160; vanilla, powdered; 500; charcoal, powdered, 1,800; oil of cloves, 10; tincture of vanilla, 160 parts. The ingredients are finely powdered and made into a homogeneous dough with a solution of about 1½ oz. gum arabic in one quart of water.

Iron Rust Spot Remover.—Cream of tartar, 50 parts; binoxalate of potassium (powdered), 50 parts; oil of rosemary, 1 part. Rub to powder, and mix well. Moisten the spot, place on a heated tin plate, and rub with the moistened powder.

Diphtheria.—Dr. Otto Seifert uses:—℞—Chinoline, 15 grains; distilled water, 1 pint; alcohol, 1 oz.; ol. menth. pip., 2 drops. It may be used as a gargle, or as a wash to swab the throat.

Circassian Pomade (*Circassian Cream*).—Oil of almonds, expressed, 1; lard, 2; benzoin pomade, 2 parts; rose pomade (French), 1 part; alkanet, q.s.; oil of rose, q.s. Melt the lard, pomades, and almond oil together on the water-bath, colour them to the proper tint with alkanet, then remove the heat, stir until nearly cold, and add 8 to 10 drops of oil of rose for each pound of product. Benzoin Pomade is thus prepared:—Fresh beef tallow, 20; fresh lard, 10; benzoin, 6 parts. Melt the tallow and lard to a temperature of about 85° C. (185° F.), place in the melted mass the benzoin (in coarse pieces, tied in a muslin bag), and macerate for several hours, keeping the vessel well covered. Then strain and let cool.

Cucumber Pomade or Cream.—Oil of almonds, expressed, 40 parts; oil of sesame, 3 parts; wax, 2 parts; spermaceti, 3 parts; cucumber juice, 35 parts; oil of neroli, 1-16th part. The cucumber juice is obtained by pressing the cucumbers, raising the juice quickly to boiling, and filtering it through linen. In order to better preserve the aroma of cucumbers, it is advisable to prepare so-called "cucumber oil" by macerating cucumbers in the finest quality of olive oil for twenty-four hours, and then using this in place of the almond oil. By adding freshly-expressed cucumber juice to fresh lard melted on the water-bath, the aroma may likewise be transferred to the lard which separates from the watery liquid on cooling. The aroma may further be imparted to oils or fat by so-called tincture or essence of cucumbers, which is prepared by digesting sliced cucumbers with a quantity of deodorised alcohol sufficient to cover them, and distilling the alcohol off after 24 hours.

Baking-Powder. — Tartaric acid, 6; bicarbonate of sodium, 8; flour, 32 ounces. Mix.

Kemmerich's Extract of Meat. — The new brand of extract of meat, made by E. Kemmerich & Co., of Santa Elena, Argentine Republic, has been analysed by G. E. Lichtenberger, and found to contain:—

		(Fray-Bentos.)
Water	16·53	22·26
Organic matter	62·65	57 51
Salts (ash)	20 82	20 23
	100 00	100 00
Among the constituents are:—		
Nitrogen	9 25	7·42
Phosphoric acid,		
in the ash	33·12	30·46
in the extract	6 89	6·16
Potash,		
in the ash	44 83	40·82
in the extract	9·25	8·27

The second column contains the figures obtained from a sample of the extract made by the original Fray-Bentos Company, analysed at the same time. We do not, however, attribute much value to the figures obtained for the latter, since we know that the composition slightly varies, and that samples have been in the market containing much less water, and, therefore, more of the various solid constituents.

To Fasten Labels on Metal.—The following composition is recommended:—Mucilage of tragacanth, 10; honey, 10; flour, 1, parts.

To Prevent Scratching Matches on Paint.—A correspondent in Florida, speaking of the defacement of paint by the inadvertent or heedless scratching of matches, says that he has observed that when one mark has been made others follow rapidly. To effectually prevent this, rub the spot with flannel saturated with any liquid vaseline. "After that, people may try to strike their matches there as much as they like, they will neither get a light nor injure the paint," and, most singular, the petroleum causes the existing mark to soon disappear, at least when it occurs on dark paint.

To Get Rid of Flies.—Another suggestion towards abating an every-day nuisance is, that a growing castor-oil plant will rid a room of *flies*. Some are found dead around it and adhering to its leaves, the others disappear. It is also suggested that a similar property resides in a large Japanese lily (*Lilium auratum*), which, aside from this virtue, is one of the handsomest of its species, and would form, like the castor-oil plant, an attractive feature in any store.

LEMONADE is prepared by cutting four lemons into halves, squeezing the juice into three pints of boiling water, then taking half-a-pound of sugar in pieces and rubbing the peel till the sugar is yellow, so as to get at the essential oil of the peel, and then pour the whole into a jug, cover, let it cool, and then strain. It also may be iced. When the patient is not very ill, or is recovering, it is well to add the white of an egg, and then froth up. So prepared, a nutritive drink is furnished to the patient.

PURE WATER is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the LONDON AND GENERAL WATER PURIFYING COMPANY, LIMITED, 157, Strand, London, W.C., who will return particulars post free.—[ADVT.]

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

WATER-PIPES AND HEALTH.

The volume of water entering and passing through the well may be so great that the proportion of lead, even if present, may be too small to be of practical effect; nevertheless, the safe rule is to reject lead-pipe altogether for use in such connection. It is not, however, easy to suggest a proper substitute. Iron-pipes rust, and "galvanised" iron is not much better after a short period of use. Probably the best pipes now in the market are the bitumenised or asphalted pipes. These are, however, of various qualities, and in the inferior grades the coating does not in all cases thoroughly protect the iron from rusting. If the Bower-Barff process can be made a practical success, so that a perfect coating of the black oxide of iron can be guaranteed in the interior of small-size iron-pipes, we shall have in it the ideal pipe for such purposes.

We come now to that part of the subject with which we are most immediately concerned—the use of lead pipe for service pipes in connection with a public supply. The facility with which lead may be worked, and its comparative cheapness, make it *par excellence* the material for service pipes, unless the sanitary objections to its use outweigh these advantages. To decide this point we are not obliged to resort to laboratory experiment, for lead pipe has been in use for thousands of years, and even in modern times we have an abundant experience from which to draw our conclusions. We may admit that various waters are not alike in the extent of their action, that there may be some which ought not, under any circumstances, to be conveyed in lead pipes, and that lead pipes should not be used where the supply is intermittent and the interior surface of the pipes is liable to be frequently exposed to the alternate action of air and water. As a rule, however, with waters which are suited for water supply, there is next to no danger in the use of lead service pipes.

It is true, in general, that when water is introduced into a new pipe there is some corrosion of the pipe, and the water carries with it compounds of lead, partly in solution and partly in suspension. The lead soon becomes covered with a thin and closely adherent coating of compounds of lead, which are themselves but very slightly soluble in the water, and which protect the metal, to a large extent, from further corrosion. After this coating has formed, the water which is allowed to flow continuously through the pipes contains only a very minute amount of lead; if the water be allowed to remain in the pipes undisturbed for some hours, a larger amount of lead will be found in the first portions of water drawn. For this reason, while advocating the use of lead for service pipes, the writer would hesitate to advise the use of such pipe in conveying water from a spring more than a few hundred feet distant, unless the water were to be kept constantly flowing, and would advise always allowing enough water to run to waste in the morning, to clear the pipes before any is drawn for drinking or cooking. If the water be drawn through a charcoal or bone-coal filter, there will probably be no danger whatever. The term "next to no danger" was used in a preceding paragraph advisedly. There are some persons who are by nature very susceptible to lead poisoning, and some who have once been seriously affected may thereafter have a recurrence of the symptoms as a result of taking an extremely minute amount of lead into the system. For such exceptionable individuals, there is always risk in using water which has been at all in contact with lead, and they should avoid all such water, or be sure that it has been efficiently filtered through some form of carbon or spongy iron. For *hot-water* pipes the writer would not recommend lead, unless there was absolute security that the water could not be drawn by the servants to be used in cooking; such security it would be difficult to insure.

The chemical character of the coating which forms naturally in the pipes differs with different waters. The writer found, with the Boston water in 1870, that the pipes were usually lined with coating which was brown on the outside from the presence of organic matter (not of iron-rust), and that the coating underneath was almost wholly carbonate of lead. Reichardt examined the coating of a pipe which had been used in Andernach for 300 years, and found that the coating consisted largely of phosphate of lead.

How far the treatment of the pipes with a solution of sulphide of potassium, or other alkaline sulphide, may tend to prevent corrosion by the formation of a coating of sulphide of lead, the writer cannot say from experience. This method was proposed by Schwartz in 1862. It was used to some extent in Germany, and was favourably spoken of by Willm in Paris (1874). Reichardt, however, found that water passed through such pipes was not wholly free from lead, which is what we should anticipate. It is stated on good authority that the treatment with phosphate of soda which was to form an insoluble coating of phosphate of lead did not prove a success.

Where water is drawn through lead it is doubtful whether action ever *absolutely* ceases, although it may become so slight that a pipe may last several hundred years and more. When statements are made that in some cases *no lead* is present, this only means that none has been detected in the quantity of water submitted to analysis, and, in fact, it often means simply that the unconcentrated water gives no evidence of the presence of lead when tested with sulphuretted hydrogen. It seldom, if ever, means to assert that absolutely no lead could be discovered by operating upon large volumes of the water, although for all practical purposes lead may be pronounced absent. Another thing which has probably led to erroneous statements in this direction is the fact that the sulphide of lead is soluble to some extent in an excess of sulphuretted hydrogen, so that in performing the test without due care, lead may be pronounced absent when more carefully testing would show the presence of a small amount.—*Sanitary Engineer.*

WATER DRINKING.

It is somewhat surprising that, in a country in which rain falls almost every day in large or small measure, the use of pure water as a drink is not better understood than it is. Even now that the sway of temperance is well established, and continues to extend, we should be surprised to learn that a majority of Englishmen do not habitually discard the use of the natural beverage for one or other in which it is compounded with foreign ingre-

Snelgrove's Governor Gas Burners.—Save quarter to half the gas bill. 15s. per dozen. Samples 18 stamps. Lists free.—60, Queen Victoria-street, E.C.; and of all Ironmongers.—[Advt.]

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

Dr. Nichols' Penny Vegetarian Cookery-Book.—Every household should possess this marvel of cheapness. Free for 1½d.—Nichols & Co., 23, Oxford-street, London, W.—[Advt.]

dients. Yet its very purity from all but a salutary trace of mineral matter is what renders it capable of exactly satisfying—and neither more nor less than satisfying—the needs of thirsty tissue, and of assisting by its mere diluent and solvent action, without stimulation or other affection of function, the digestion and excretion of food. No other qualifications are necessary. Given digestible, solid food, and fair—that is normal—digestive power, water alone is all-sufficient as liquid. During the feebleness consequent on disease or overwork everything is changed. There is blood, though impoverished in quality, to receive and convey nutritive material, and there are tissues to be fed, but the *vis a tergo*, the driving power of the heart, resides in a languid muscle, and the alimentary canal, itself but poorly irrigated from that centre of supply, receives what food is taken only to prove its incapacity to utilise it. Nature is flagging, and a stimulant alone will make ends meet in the circle of tissue-building processes. As a general rule, however, abstinence holds the first rank, both in theory and practice. We do not assert that the man who regularly, and in strict moderation, partakes of a light stimulant—claret, for instance—may not, especially if he is equally regular in regard to out-door exercise, live comfortably to the full term of human life; but what we say is that the more simply the man fares, the more he employs such adventitious measures for actual physical necessity, the more he will gain in health, in life, in working power, and in aptitude to benefit by stimulation when strength is failing from disease or from decay. But if water be the drink, how shall it be drunk? The means must have regard to the end required of them. To moisten food and prepare it for digestion it is hardly necessary to say that it should be taken with a meal; a couple of tumblerfuls at dinner is not an excessive quantity for most persons. For thirst-quenching properties nothing can surpass this simplest of drinks, and all which approach it in efficacy owe their power almost entirely to it. As to temperature, there is no real ground for supposing that one should not drink a sufficiency of cold water when the body is heated by exertion. The inhabitants of hot climates have no such objection. Some tropical wells are dug so deep that the water within them, even in hot seasons, is as cool as that of a European spring. In fevers, too, the use of ice in quantities sufficient to allay thirst is a part of rational and legitimate treatment. The shock which has to be avoided in all such states is not that which cools the mucous membrane, but that of sharp chill applied to the surface of the body. Some persons, however, find it convenient and beneficial to imbibe a certain amount of warm water daily, preferably at bedtime. They find that they thus obtain a bland diluent and laxative, without even the momentary reaction which follows the introduction of a colder fluid, and softened by abstraction of its calcareous matter in the previous process of boiling. This method, which is an accommodation to jaded stomachs, has its value for such, though it is not great even for them; but it affords no noticeable advantage for those of greater tone. The use of water as an aid to excretion deserves some remark. In certain cases of kidney disease it has been found to assist elimination of waste by flushing without in any way irritating the kidneys. Everyone is probably aware of its similar action on the contents of the bowel when taken on the old-fashioned, but common-sense, plan of drinking a glass of water regularly morning and evening, without any solid food. Whatever may be true of harmless luxuries, enough has been said to show that health, happiness, and work find stimulus enough in the unsophisticated well of nature.—*Lancet.*

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

RECREATION.

WHAT we principally need is a general recognition of the fact that pleasure is a moral duty, and as necessary to man's perfect and wholesome development as work; coupled with this a stronger public opinion, which must create the desire to promote all innocent recreations, and to organise a scheme of amusement by which people can be taught what is pleasure, how to get and how to value it. Once the national recognition of man's need for pleasure becomes a fact, the supply of pleasure will be equal to the demand, and the stream of tendency will be quietly guided into the right channel. There seems no reason to doubt that amusements can be made elevating and yet self-supporting, and eventually, by encouraging habits of thrift and economy, and diffusing a higher standard of moral duty, advantageously relieve the rates. There is an obligation laid upon the educated and the holders of property not to stand aloof, inert, wrapped in a mantle of selfish indifference, for if they have acquired political interests and rights, they are also bound by social interests and duties.

One of the deterrents to enthusiasm may be found in the fact that it does not pay to be a social reformer. He cannot be a party man, for he must view the subject from a wider and more catholic standpoint; he is of no value to a Government, rather a thorn in its side, and he can expect neither honours nor promotion. Therefore, practically, what is everybody's business is nobody's business, and as the State cannot and will not interfere, such things are left to the spasmodic and characteristic attempts of private charity. And the inadequacy and waste of charity which is not conducted on some system is every day more apparent. The various suggestions here given would, no doubt, entail an enormous expenditure of money and patience. The money would probably be returned in time with interest; the patience must be its own reward.

But there are numbers of people to whom money is not of paramount value, and there are numbers on whom a sense of the tragedy of life presses with such an unbearable weight of sadness and despair that they would gladly do all in their power to alleviate, if only in the smallest degree, the ills caused by want of thought, the accumulation of capital in the hands of a minority, and the increasing struggle for life rendered inevitable by the remorseless results of a highly complex civilisation. Let us endeavour to spend more time in righting the just balance of toil and pleasure, more money in recreation, so that less need be spent in crime; let us inaugurate the advent of prevention rather than cure, as has already been done to some extent in medicine; let us train up healthy men and women instead of miserable, degraded criminals; let us empty our gaols and reformatories, and fill our concert-rooms and our picture-galleries; let laughter reign in the place of sullen defiance, and let us not refuse to acknowledge the inexorable aspirations of humanity and the entreaties of heart and brain crying out for legitimate satisfaction.—*Lady Grenville in the "Fortnightly Review."*

CHAPPUIS' DAYLIGHT REFLECTORS FOR SCHOOLS.—Factory, 69, Fleet-street.—[ADVT.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

UNINFLAMMABLE DRESS-MATERIALS.—At this season of the year we are accustomed to hear of sad fatalities arising from the accidental ignition of the highly inflammable materials which usually compose the "dresses" of females. Although many practical suggestions have been made from time to time with the view of popularising uninflammable dress-materials, the use of such incombustible articles of apparel does not appear to have found favour with the fair sex. Tungstate of soda has been the material most frequently employed to render light fabrics uninflammable; it fulfils the purpose admirably, but its high cost has been an objection to its use. Patera's formulæ has stood successfully frequent trials of their efficacy. One of these preparations is made by dissolving three parts by weight of biborate of soda and two and a quarter parts of sulphate of magnesia in twenty parts of water. Fabrics soaked in this solution become coated with a borate of magnesia, which is insoluble in hot or cold water, and is a good resistant of fire. The other preparation is a mixture of sulphate of ammonia with sulphate of lime, or gypsum, in proportions of one part of sulphate of ammonia to two parts of gypsum. The gypsum is said to form with the ammonia a double sulphate which has not the disagreeable properties of the ammonia-salt. The action of this preparation seems to be twofold—first, in coating the fibres of the material to be protected; and also in the production, when the material is brought to a red heat, of volatile ammonia, which tends to smother flame.—*British Medical Journal.*

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SCARLET FEVER.—Dr. Oxley, writing in the *Lancet*, says:—"With reference to the spread of scarlet fever I need not detain you, as there are so many sources to which you can refer as to the management of patients with a view to isolation. One remark I would make, and that is with regard to the disinfectant best calculated for our purpose. After considerable experience I strongly advise chloride of lime as a disinfectant of the air, and carbolic for the clothes and drains, as well as in the form of soap, and added to the baths as a disinfector of the body. The rubbing of the body all over with some greasy substance is undoubtedly an excellent plan to prevent the peeling skin from flying about, but I consider it unnecessary to add to the unguent any disinfectant, unless it be some mild resin. I would not have alluded to this had I not seen a letter in one of the medical journals denouncing the practice as dangerous, "filling up the pores of the skin," &c. I can say with confidence that we can with perfect safety to the patient prevent the dry desquamating skin from flying about the room by this means.

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FASCINATION.—M. Brémond has made, on sailors, soldiers, and officers, from fourteen to twenty-six years of age, a large number of experiments showing that lethargy, catalepsy, and somnambulism can be produced in healthy non-hysterical people, and that these phenomena are preceded by a peculiar state of fascination. The period of fascination is characterised by a sudden increase in the frequency of the pulse. One-third of the young men experimented upon manifested one or more of the above-mentioned symptoms.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

The Book of Health. Edited by MALCOLM MORRIS. (London: Cassell & Co., Limited.)

THE eminent publishing house of Messrs. Cassell & Co. have on more than one occasion laid the public under a deep debt of obligation by the handsome and trustworthy information which they have dispensed on the subject of health. We lately had occasion to review in terms of praise "The Family Physician," published by this firm, and there now lies before us a large and handsomely-bound volume, printed in clear type, and bearing the title of "The Book of Health." The title-page gives no evidence at first hand of the care and discrimination with which the materials of this work have been selected. Edited by Mr. Morris, F.R.C.S., the list of contributors to this work whose services he has contrived to enlist, is found to include the names of some of the most eminent physicians and surgeons of our day. Sir Risdon Bennett, Sir Joseph Fayrer, Dr. Bristowe, Dr. Joseph Ewart, Dr. Russell Reynolds, Mr. Savory, Mr. Tomes, Mr. F. Treves Dr., Hermann Weber, and Mr. Cantlie have contributed to this volume; and the presence of the names of such men on the title-page is in itself a sound guarantee that the material of the work will not only bear minute criticism, but will also be found to contain advice and information of the most trustworthy character.

Looking through the contents of the book, we find that each writer has wisely confined himself to the full and popular treatment of a special subject. Mr. Morris has presented us with a "symposium," so to speak, of eminent medical men, all speaking with authority on the respective topics of which they treat. Mr. Savory, for example, writes an introductory chapter, in which he reviews the general functions (or physiology) of the living body; and supplies therein full details of the general actions through the performance of which life is maintained. We have carefully perused Mr. Savory's article, and are able to speak in the highest possible terms of its excellence and plainness, as an account of the body's work, and of the causes through which that work may, in the varied accidents of life, be disturbed. He is eminently philosophical throughout his discussion of the questions which crop up for solution in the course of his physiological journey, and nowhere do we find scientific accuracy sacrificed to popularity of expression. Any one reading carefully Mr. Savory's paper, cannot avoid obtaining a full and clear account of the foundations of health-science. It is gratifying to find that our own policy, in maintaining as a standard rule that a true knowledge of health-laws can only be founded on the appreciation of what physical life is and what our bodily processes mean, is endorsed so fully by such an eminent authority as Mr. Savory himself.

Sir Risdon Bennett follows Mr. Savory with an account of "Food and its Uses in Health." Here, again, we perceive the exercise of a wise editorial policy. Very many of the derangements of health arise from ill-regulated habits of food-taking. The necessity for a knowledge of what foods we require, how much food we need, and when food should be taken, becomes plainly apparent to all when we reflect on the fact that the exercise of the great function of nutrition is the primary duty of the living body. It is needless to add, that throughout his article Sir Risdon Bennett writes in a clear fashion. His remarks on the

various dietaries required for different ages should be perused with interest by all, and a large amount of information of the most valuable kind is afforded on all food-topics likely to prove of importance to the general reader. Succeeding Sir Risdon Bennett comes Dr. Lauder Brunton, who, in some measure, overlaps the subjects of his predecessor in his article on "The Influence of Stimulants and Narcotics on Health." The value of alcohol, and the place and power of this agent for good and evil, are duly and most temperately discussed, while other forms of stimulants—from ether and opium to tobacco, cocoa, kola nut, tea and coffee—are duly noted, and their effects plainly described. Dr. Brunton leans to the opinion that alcohol is a food, but not a convenient form of nourishment. He adds that it agrees with sugar in

Fig. 1.—The Divided Skirt.

many respects, and that it appears to undergo combustion in the body, seeing that it is not excreted; but lessens the combustion of other foods. His remarks on the influence of alcohol on the nervous system are pregnant with importance, and he is careful to note the immense differences presented by various drinkers—*e.g.*, the beer-drinker, wine-drinker, and the consumer of whisky. Altogether, Dr. Brunton is to be highly congratulated on the success with which he has treated a topic no less of individual than of national importance.

Dr. Crichton Browne deals with a topic which in these latter days has come prominently to the front in many ways—namely, "Education of the Nervous System." This article is emphatically one for the teacher and the parent, and the cautions with which it teems against the "forcing" system might well be laid to heart by all interested in the healthy upbringing of the young. Mr. Cantlie deals with "The Influence of Exercise on Health," in a broad and liberal spirit. He describes the various kinds of games, and shows the special influence each form of recreation possesses on the muscles and other organs. His remarks on "Girls' Work and Exercise" are worthy of perusal by the heads of girls' schools, as a strong argument in favour of the absolute necessity for enlarged opportunities of physical exercise in the healthy upbringing of the female sex.

Mr. Treves, in his article on "The Influence of Dress on Health," is in his element. His paper will prove more than usually interesting to both sexes, and he sets forth in detail the considerations which influence the man of science in declaring for or against special styles of dress and clothing. The subject of the divided-skirt (Fig. 1) receives Mr. Treves' attention amongst other details. He declares this dress to be "certainly sensible, and fully in accord with hygienic principles." Each limb in the dress designed by Lady Harberton "is separately clothed by its own 'skirt,' and the extremities are thus clad by what are practically trousers. By an ingenious arrangement of the material, however, the division between the two limbs is scarcely obvious, and the general aspect of the costume is much less pronounced than may be imagined."

The remaining articles in "The Book of Health" deal each with topics of high importance. It is almost impossible to select one which ranks before another in point

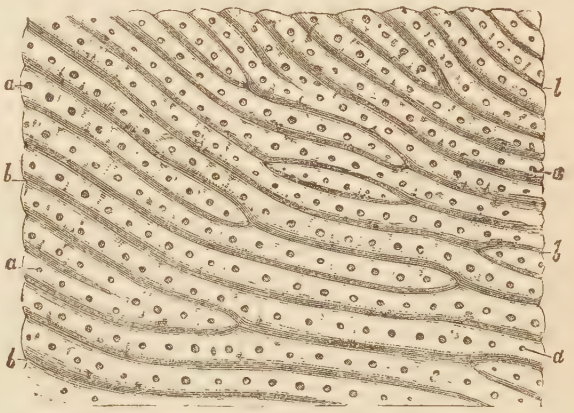

Fig. 2.—The Openings of the Skin-Glands in the Hand.

of interest—so well chosen are the subjects, and so lucidly treated are all the details. For example, the articles by Dr. Pollock on "Surroundings and Health," by Dr. Reynolds on "Travelling and Health," by Dr. Murphy on "Health at Home," and by Dr. Cheadle on "Health in Infancy and Childhood," treat of topics, the importance of which no one may deny. Again, Dr. Dukes, in dealing with "Health at School," is careful for the most part to avoid colliding with the remarks of Dr. Browne already noted, and takes the subjects of the schoolroom, dormitories, sickness in the school, &c., as his special field. Very interesting papers on the "Eye" and "Ear" and on "Throat, Voice and Speech," are contributed by Messrs. Power, Field, and Dr. Bristowe respectively; while the "Teeth" could have been allocated to no abler hands than to those of Mr. C. Tomes. Mr. Morris, the editor, deals in his turn with the "Skin and Hair." These latter topics are of every-day importance, and may be said to bring us face to face with the æsthetic aspects of health. A most lucid description is given by Mr. Morris of the structure of the skin, including the sweat-glands and their openings, the openings of those on the palm of the hand being represented in Fig. 2, where the openings (*a*) of the sweat tubes are shown, together with the ridges of skin (*b*) which separate

them. Mr. Morris is also careful to give full details concerning baths and bathing, and such information tends to make his contribution of highly practical nature. "Health in India" and "Climate and Health-Resorts," treated by Sir Joseph Fayrer and Dr. Weber respectively, form the concluding articles of the volume, which thus, in the variety and fulness of its contents, is found to embrace the information which, besides enabling us to preserve health in the home and as individuals, shows us where to seek and find health abroad.

If the axiom that "good books diffuse light" be admitted as true, assuredly "The Book of Health" will stand as a high example of a medium from which much mental effulgence may be derived regarding topics of supreme import to rich and poor alike. We know of no book which, more readily than this, we can recommend for purchase by the intelligent householder, parent, teacher, or student of health in any of the phases or aspects in which hygienic science may appeal to mankind. There is literally not a page which does not teem with instruction, and from which the reader will not glean some items of information likely to benefit him in the search after healthy living. To seek health through an intelligent education in sanitary laws, has fortunately become something more than a dream of our times. No higher praise can be awarded to this book than to say that it is eminently calculated to assist all in their endeavours to live wisely by the light of exact knowledge and clear details.

Closets.—In general we can make the following demands upon all good closets:—They should be as simple as possible, and have a minimum of moving parts, which are more or less likely to get out of order. A closet with a complicated mechanism should always be condemned. The foul matters should drop into water quickly as possible, in order to deodorise them, as well as to prevent them, as much as possible, from touching the surface of any part of the closet. In hopper closets this condition can only be approached with difficulty; but by making them short, to reduce the fouling surface, by placing the outlet pretty well back, and by having an abundant flush of water, little trouble from the adhesion of soil will be experienced. In fact, all closets should be liberally supplied with water, and in order to make the flush effectual, the whole quantity, about two gallons for each use, must be introduced suddenly. In the best closets it enters the bowl at once from around the entire upper edge, which is provided for the purpose with a so-called flushing rim. The water rushes down the sides of the bowl with sufficient force to cleanse them, and in the case of the "washout" closets to drive out the contents of the bowl into the trap. The water used for flushing should be drawn from special tanks or cisterns, to be used for no other purpose. It is very objectionable to get it directly from the supply pipes, except where a constant and great pressure of water can be had at the closet, for it often happens from various causes that the available quantity in the pipes is so much reduced as to be quite insufficient for flushing. Sometimes the draft of water in a lower story will *entirely* stop its flow at the closet, and if the valve is open, even suck foul air back into the pipe and contaminate the water, which later may be drawn from a near faucet for drinking purposes. Hopper and "wash-out" closets, to work satisfactorily, should always be flushed from tanks. The former should, in fact, have automatic arrangements for the purpose, because the soil is not seen, except in very short hoppers, and the flushing consequently is often neglected.

Sanitary Appliances, Etc.

THE SILICATED CARBON PATENT MOVABLE BLOCK FILTER.

The Silicated Carbon Filter Company, of Battersea, has recently patented a new Movable Block Filter, of which we now give drawings and particulars. By means of a division inside the filter, an earthenware spindle is made to pass through the centre of a silicated carbon block, which is securely bolted down to a hollow india-rubber flange. The removal of a nut releases the block, which can thus be instantly taken out, leaving the whole of the interior of the filter open for inspection or cleansing. The working parts are all stoneware, and no corrosion is possible.

The block itself being non-porous on the top and edges, an upward direction is given to the water, which is thus made to pass through a greater thickness of the silicated carbon, as shown by the arrows in section. Extra blocks are supplied with a filter when desired, while all parts, being interchangeable, can be replaced in case of accident without the filter itself being returned to the makers. We are informed that this patent can be adapted to all patterns manufactured by the Silicated Carbon Filter Company without increased charge, and that filters of other makers can, if desired, be refitted on this principle. The Patent Movable Block Filter is designed to meet a growing demand for a filter of which every part is accessible for cleansing, and in which the filtering medium can be removed by the user himself as often as required without returning it to the makers, on the attainment of which object we may fairly congratulate the Silicated Carbon Filter Company.

Woman's Mental Constitution.—It must be remembered that, in many respects, the female organism is far more delicate than that of men. This is especially so at adolescence. The machine is less tough, and breaks down at slighter causes. It has more calls on it. It needs more careful management. It is not steady in its action, but irregular. It is not fitted for the regular grind that the man can keep up. Having beauty and harmony as two of its great ideal aims, its strength is not so great. Having to lay up more for the future, it can't expend so much in the present. Sensitiveness always implies delicacy, and in many cases instability, in nature. Even suppose it is granted that it was a good thing for a woman that her brain should contain all the book-knowledge that many modern educationalists demand, this good thing might be altogether counterbalanced if the labour of acquiring it stopped one inch of growth, or diminished the joy and organic satisfaction of life one iota. If the men of the future were to suffer and be degenerate through it in the faintest degree, then it would be radically bad.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," *74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "THE PUBLISHER," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* EDITOR *and* PUBLISHERS *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only The EDITOR *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

CHILDREN'S DRESS.

SIR,—I thought that my article, referred to by Mr. H. Maxwell, was written in perfectly plain English, yet my meaning seems to have been quite misunderstood by him. The gist of the sentence to which he takes exception is, that after a child begins to walk it ought to wear well-fitting boots, which must be comfortable, but yet not so loose that the feet may spread, and thus become disfigured. That ill-clad feet do become disfigured in this way is proved by every-day experience. His analogy between children's feet and young ladies' figures is logically false, since the feet have to bear the whole weight of the body, while the figure has obviously no such function to perform. If, however, Mr. Maxwell wants my personal opinion on the subject of corsets, I am happy to give it, as it may be also of interest to others now when there is such an outcry against that article of dress. Under the present conditions of dress and society I think corsets desirable for all but very thin women. Though opposed to tight-lacing, I consider that stays, when light and well made, help to distribute the weight of the skirts, and to maintain the body in an upright position, and I am not at all favourably impressed by the appearance of those young ladies who have renounced their use. They all look limp, invertebrate creatures, and I have not seen one without a confirmed stoop. —I am, sir, yours truly, ADA S. BALLIN.

14, Tavistock-square, London, Jan. 14, 1884.

THE DANGER OF INHALING SEWER-GASES IN THE STREET.

SIR,—From the intimation on page 225 of the death of a policeman at Croydon, it would appear to be again proved that typhoid fever may be contracted from the inhalation of the emanations from a public sewer even in the street.

Various parties have pointed out the great danger from this cause. I have often done so myself in the London journals, and especially condemned the use of gully gratings at the edge of the pavement as open sewer ventilators.

The insertion of an outlet sewer ventilator in the line of the pavement at crossings, also anywhere at busy crossings where it is a nuisance, has been written against. In the *Building News*, a year or two ago, a letter appeared from a gentleman, stating that he and a friend had contracted typhoid fever while standing near a sewer ventilating gully at edge of pavement waiting upon a tramway car. I suppose they had been speaking, and so inhaled mouthfuls of the sewer air contaminated with disease germs.

Various people, and in some cases otherwise able sanitarians, have pooh-poohed the danger from sewer air in the open street, asserting that the fresh air, or the oxygen in the air, counteracted or prevented evil effects in the open air; but this is so far a mistake. Even supposing the fresh air did counteract the danger from the sewer emanations, it requires time to do so. The fire will boil water in time, but it takes time, and if a person happens to be upon the leeward side of a sewer-grating when a large body of sewer air rushes out, he may inhale it about quite as strong as if he were inside the sewer. In fact, by breathing only through the nose in the latter case and not speaking, a person may be much safer than breathing through the mouth in the streets in the former.

I believe many children have been poisoned by these gully-gratings, which act as sewer ventilators, while playing near or over them at the edge of the pavement; and I would therefore hope that the death of this policeman at Croydon, by again calling public attention to the matter, will have the effect of causing some practical steps to be taken to put a stop to this dangerous nuisance and evil. I have often been disgusted myself when walking past some of these gully-gratings when they were letting out bad air from the sewer.

Like smoke, sewer gas should be blown off at as high a level as possible, not openly under our noses and mouths, and without even what, in many cases might be a safeguard to some extent, if properly carried out, viz., filtration through some protective machine.—I am, yours respectfully, W. P. BUCHAN, S.E.

21, Renfrew-street, Glasgow, Jan. 12, 1884.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending HEALTH to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of HEALTH, to address their inquiries to the Publisher, *and not to the Editor.*

Correspondents will please note that Queries addressed on Postcards are consigned to our waste-paper basket. If information is worth having, it is at least worth a letter.

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.

GENERAL.

SAMBUCUS.—The preparation is not, as you suppose, extinct. It is manufactured still in Germany.

EXOTIC.—Try the first-named; it will suit you very well.

EXCELSIOR.—From ten to twelve, we believe—not more.

FEVER.—Sir William Jenner and Dr. Perry, of Glasgow, were amongst the first to distinguish between typhoid and typhus fever. The former certainly completed the distinction, and brought our knowledge of each fever to a settled condition. Sir W. Jenner's work was done between 1849 and 1851.

A. X. L.—See our papers on the "Germ Theory."

BRODIG.—Not more than 10 per cent. we believe; you might safely increase the quantity to 15 per cent.

OVERLOOKER.—"Falling sickness" is the popular name for epilepsy; "Menière's disease" is a term for certain symptoms described by that physician in 1861, including a tendency to fall to one side, which was believed to be associated with disease of the semicircular canals of the ear. There is no cure or treatment, save giving large doses of bromide of potass.

TRICHINA.—A round worm of minute size, contained within a capsule, and found imbedded in the muscles of the pig.

ALLOA.—There is no such condition.

B. A.—Apply to the publishers, please.

MRS. E. PARKER.—Schramm's "Boncontour Belt" may be purchased of the maker.

GYM.—There is a gymnasium at No. 75, Albany-street, N.W., which you might visit to see if it suited your requirements. If not suited there, write again, and we will give other addresses.

PEROXIDE OF HYDROGEN.—See our "Notes by the Way," No. 41, HEALTH, and also our remarks on Peroxide of Hydrogen in "Notes" of present number.

B. HIPPISLEY.—See Editor's testimonials.

SANITARY.

G. ALFORD.—You have no claim. The landlord is not entitled under such an arrangement to effect the repairs you speak of, even if it be proved they are necessary from a health point of view.

OXFORD.—1. Terebene or cupralum powder. 2. We prefer "Sanitas."

ANTHONY.—1. Write to the patentees. 2. There is no restriction, so far as we know.

CECIL.—The outlet is too low; try it, say, 3 ft. higher.

F. O.—Any of the electric-bell makers will supply the information you seek. The British Insulite Bell is extremly convenient and handy, and does not spill acids or other fluids.

ANDREW LANG.—Disinfection, to be thorough in such a case, would require, we imagine, to be of such force as to destroy the clothing. Why preserve the clothing at all? There is great risk in such a procedure.

Building.—A man of your attainments should be able to obtain a situation as a sanitary inspector, or in some capacity where your health-knowledge would be available and useful. You might put yourself in communication with the Sanitary Inspector's Association, and attend to the advertisements of such situations which the daily newspapers often contain, and which are also found in those journals devoted to health-science.

MEDICAL.

John Harvey.—You do not describe any symptoms from which you specially suffer. Let us hear exactly of what you complain, and we will endeavour to advise you.

B. Gill.—Take fifteen drops of *Fer Bravais* in water thrice daily between meals. The cold bath may be continued.

G. P.—We think you would benefit by trying a vegetable dietary for a time, as that would relieve the constipation which causes you trouble and pain. Use injections of cold water, and you might also add a little tincture of perchloride of iron to the water with advantage. "Æsculap" mineral water might occasionally be taken in the morning as a mild aperient. Glad to be of any further service.

Bookstall.—No need, we should think, for you to be alarmed in any way. The "cracking" is not connected with any such affection. By way, more of a mental than physical satisfaction, you might take for a short time a dessertspoonful thrice daily of a mixture of 2 drachms iodide of potass and 6 oz. infusion of calumba. This mixture might be repeated, at short intervals, for a few months.

C. H. Thomas.—(We never reply to correspondents by letter unless in special circumstances.) You are needlessly nervous and excited over yourself. See and follow advice given to "J. R. (Glasgow)," in Health, No. 39, and you will soon recover. But you should know that your case must be as much mental as physical. Steer clear of all quacks, who flourish on cases like yours.

W. D. D.—Try the following: Santonin, in powder, three grains; sugar, in powder, twelve grains. Mix. This powder to be given at bedtime to the child. The dose may be repeated after the interval of a night.

C. F. J.—Use a little plain "Vaseline" applied to the inside of the nostril when the affection threatens to come. If this is not effective, write again.

Arthur Harvey.—1. No dye of the kind you require is known, except one that contains lead, and this we cannot advise you to use. 2. Hot salt foot-baths and rubbing in warm oil at night. 3. Inhalation of the iodine vapour as recommended to "Sackcloth" in present number.

D. E. P.—We have no confidence in such a preparation, or in any such methods of treatment. You will find the tonic recommended to "Hope," in No. 40, Health, a reliable preparation in every way where such a tonic is required. It contains "phosphites" in a form eminently serviceable and judiciously combined with other tonic drugs.

L. L. D.—Each case must be judged on its own merits. It is, as a rule, best to take a tonic regularly for a time, and to watch the effect of the medicine with care on the system. The tonic should then be stopped for a time, and the general health, diet, &c., attended to.

Matilda.—1. Use a little plain Vaseline as an application at night to the lips. If not better, write again. 2. We do not know anything of the French preparation you speak of. 3. Yes; the tonic you name is by far the best of its kind made. Take a teaspoonful thrice daily in a wineglassful of water before food as an appetiser and tonic.

Leslie.—You do not give any particulars regarding your symptoms. From your own account you suffer from palpitation. Is your digestion in good order? Describe your health and habits, &c.

An Anxious Father.—In the case of the children you name, we should strongly advise you to dose them thoroughly during the cold weather with cod-liver oil or with the cod oil emulsion. They must have plenty of fatty food, cream, milk, &c. By bracing them up in this way, and attending to their clothing, you will save them much illness and strengthen their constitutions at the same time. In the other case, you should consult the Professor of Midwifery in the University of your city. Don't leave the old country save on good medical advice.

A Lover of Health.—No formula or recipe is of advantage in the case you name. Try the simple plan of rubbing in pure Vaseline each night as a hair and skin stimulant. You may be constitutionally deficient in "whiskers."

Santé.—Yours is a case (1) for abstinence from *all* stimulants; (2) for extreme care in all eating and drinking; and (3) for reading (and following) the advice regarding the treatment of indigestion given to "H. C. E." in No. 40 Health. Give up quack medicines, and if not improved, write again.

A. B. C.—Try Platel's "P. P. Ports" (to be had from Platel, Brixham, Devon), which can be recommended as pure, and adapted for invalids. A wine of the age you name would likely be somewhat too heavy if the invalid were at all of delicate nature as regards digestion, &c.

W. A. J.—Your questions are rather numerous for one letter. 1. Palpitation, as a rule, depends on digestive disturbance. See to your digestion, and rest after meals. 2. Consult an oculist for your eyes. 3. You suffered, possibly, from a little bronchitis, from which you appear to have recovered. Take the tonic recommended to "Hope" in No. 40 of Health. 4. It is utterly impossible to say anything about the hearing in the case you name. Certainly, marriage could have no effect in inducing or curing it. Why not have a thoroughly good opinion regarding the ear? That is your only chance of attaining certainty.

E. J. Lamb.—Don't be nervous about yourself. Read and follow the advice given to "J. R. (Glasgow)," in Health, No. 39. You will get quite well by attending to the directions there given; but you should also know that what you mention (unless too frequent) is, as often as not, a sign of health.

Everest.—See reply to "E. J. Lamb," above; and follow advice therein indicated. Don't be morbid, above all; and write again if not cured.

Semaj.—Yes; restrict washing of the head for a time. Wash only once a week with Pears' Soap and lukewarm water, and use the application recommended to "D. R. Gibson," in No. 41 Health. Let us hear from you again if not improved.

Isa N. P.—No; nothing short of a surgical operation can remove such a mark, and we would not advise you to attempt this. The only effectual way of removing hairs is by electrical means, applied by a specialist in skin or hair diseases. One form of depilatory, however, for removing hairs is made as follows:—Sulphide of sodium, three drachms; lime, ten drachms; starch, ten drachms. Mix with water to make a paste; apply to the skin for two minutes and then scrape off.

E. M.—See and follow advice given to "J. R. (Glasgow)," in No. 39 Health, and, above all, be cheerful. You will get quite well by attending to directions there given.

O. G. R.—The treatment for styes is simple. A mild aperient should be given; the food should be light for a day or two, and the eye should be fomented with hot water through the day, while a bread-and-water poultice at night should be applied. For the *prevention* of styes, the simple means is attention to the general health. A stye is, as often as not, an indication of enfeebled health. If they occur very frequently, some of the eyelashes may require to be eradicated. Try a course of pancreatised cod-liver oil emulsion as a strengthening medicine. Avoid over-use of the eyes, especially at night, and guard against chills. The following may be taken when the stye appears:—Tincture of pulsatilla, half-a-drachm; water, to make up four ounces. A teaspoonful every quarter-of-an-hour for the first hour, and one teaspoonful every hour thereafter.

G. Elliot.—You should certainly see a physician. Consult one of the Infirmary physicians in your city. It is evident that you suffer from some condition, which only a personal examination can detect. We think, at the same time, you are inclined to be morbid and over-anxious.

Juvenis.—1. Rest after food, and take a little Morson's "Pepsine" with the food. 2. Don't limit your meat-supply when your work is hard. Feed well, and don't under-nourish, as you are apparently doing.

Agricola.—See and follow advice to "W. S. Gould," Health, No. 40. For the pimples, take lime pills as follows:—Sulphide of lime, 2 grains; sugar of milk, 40 grains. Make into twenty pills—one to be taken every three hours.

A Sufferer.—Try, as a preliminary measure, the effect of the tonic ordered to "F. S." in the present number.

C. H. Johnson.—The leaflet sent is as unblushing a sample of quackery and nonsense as ever we have seen.

C. B.—Try the effect of taking 20 grains bromide of potass in a wineglassful of water about midday for a few days, and let us hear if what you complain of is thereby relieved. The affection may proceed from digestive troubles. Give a fuller account of your health.

Ninon.—The wash you name does not cleanse or clean the teeth—only a *powder* can do this. We recommend camphorated chalk or magnesia, as keeping the gums sweet and preventing tooth-decay. (See article on "Teeth" in No. 1 Health, and see also the papers "Our Useful Note-book" in Health, for various teeth-preparations.) 2. We know nothing of the action of benzoin as a cosmetic; but what we do know of it as a drug, prompts us to warn you against its use as applied to the skin. 3. For corns, avoid pressure of boots, and touch with caustic daily. 4. Yes,

[*Continued on page* 272.

INTERNATIONAL HEALTH EXHIBITION,

LONDON, 1884.

Patron—Her Majesty the Queen.
President—His Royal Highness the Prince of Wales, K.G.

HEALTH—FOOD, DRESS, the DWELLING, the SCHOOL, and the WORKSHOP.
EDUCATION—APPARATUS used in PRIMARY, TECHNICAL, and ART SCHOOLS.

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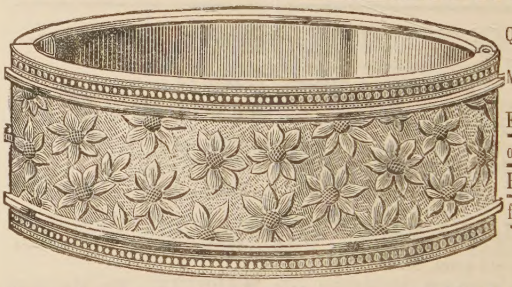

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